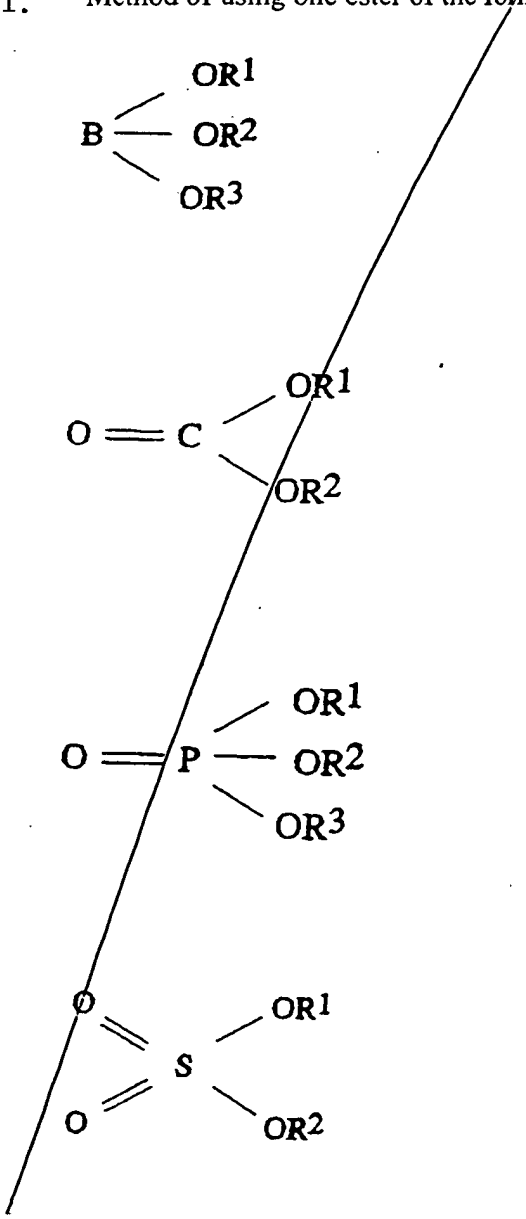
We claim:

-- 11. Method of using one ester of the formula (I) to (V)

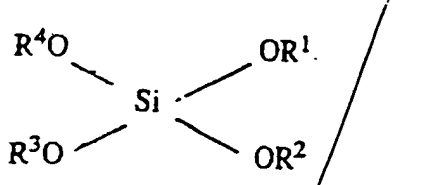


(I)

(II)

(III)

(IV)



(V)

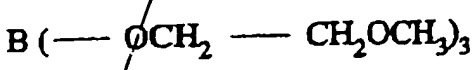
where

R^1, R^2, R3, R4 are identical or different and each, independently of one another, are a linear or branched-cain C_1- to C_4-alkyl, $(-CH_2-CH_2-O)_n-CH_3$ with n=1 to 3, a C_3- to C_6-cycloalkyl, an aromatic hydrocarbon group which in turn can be substituted, with the proviso that at least one of the groups R^1, R^2, R^3 or R^4 is $(-CH_2-CH_2-O)_n-CH_3$ with n=1 to 3

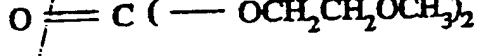
as a solvent in electrolyte systems for Li-ion storage cells.

12. Method according to claim 11, wherein the compound is one wherein R^1, R^2 and, where present, R^3 and/or R^4 are identical and are $-CH_2-CH_2-O-CH_3$ or $(-CH_2-CH_2-O)_2-CH_3$.

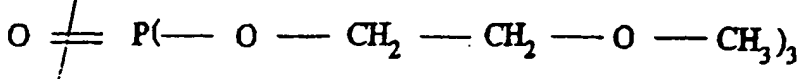
13. Method of using at least one of the compounds of formulae (Ia) to (Va)



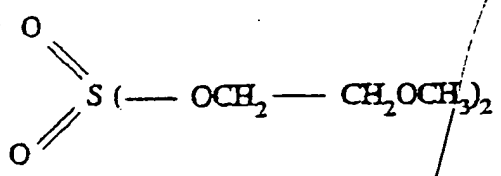
(Ia)



(IIa)



(IIIa)



(IVa)

and

$Si(-OCH_2-CH_2OCH_3)_4$ (Va)

as a solvent in electrolyte systems for Li-ion storage cells.

14. Method according to claim 11, wherein $LiPF_6$ $LiBF_4$, $LiClO_4$, $LiAsF_6$, $LiCF_3SO_3$, $LiC(CF_3SO_2)_3$, $LiC(CF_3SO_2)_2$, $LiN(SO_2F)_2$, $LiN(CF_3CF_2SO_2)_2$, $LiAlCl_4$, $LiSiF_6$, $LiSbF_6$ or mixtures of two or more thereof are employed as a conducting salt.

15. A composition comprising:

(A) at least one compound of formula (I) to (V) as defined in claim 11, and

(B) a conducting salt selected among:

$LiPF_6$, $LiBF_4$, $LiClO_4$, $LiAsF_6$, $LiCF_3SO_3$, $LiC(CF_3SO_2)_3$, $LiC(CF_3SO_2)_2$, $LiN(SO_2F)_2$, $LiN(CF_3SO_2)_2$, $LiN(CF_3CF_2SO_2)_2$, $LiAlCl_4$, $LiSiF_6$, $LiSbF_6$ and a mixture of two or more thereof.

16. A composition as claimed in claim 15, wherein the compound (A) is selected among the compounds of formulae (Ia) to (Va), as defined in claim 3 and a mixture of two or more thereof, and the conducting salt (B) is $LiBF_4$.

17. An Li-ion storage cell comprising at least one ester as defined in claim 11.

18. An Li-ion storage cell comprising a composition as claimed in claim 15.

19. Method of using a composition as claimed in claim 15, as an electrolyte system in Li-ion storage cells.

20. A process for preparing an ester of formula (I) to (V), as defined in claim 11, characterized in that a chloride is employed as a starting material and a trialkyl amine is used as a scavenger for HCl formed during the preparation of the ester.